

WASTE IN HIGHWAYS

HALF THE MONEY SPENT IN
PUBLIC ROADS IS THROWN AWAY.

'GOOD ROADS' UNIVERSAL CRY

Everybody Wants Something Done,
but Nearly Every Community is
Sleeping in the Dark—Time to Face
About and Try for Better Results.

By HOWARD H. GROSS.

No one who is familiar with the way road work has been handled for the last twenty years will dispute that half of the time and money expended upon our public roads by the hit and miss methods employed has been wasted. Most observers will say the waste is even greater. The country over, the outlay approximates \$60,000,000. We have gone on from generation to generation pursuing this absurd plan, or rather lack of plan. It is a most unbusinesslike and irresponsible proceeding. No business enterprise could last a year with such a fearful waste. A calculation made with great care by one of the best authorities in the state, contrasts the direct waste on Illinois roads by doing



Cesar Grove School House, Near Knoxville.

The wrong thing, or if perchance doing the right thing, then doing it at the wrong time, causes a loss of \$10,000 per day.

In no department of administration have we more signally failed than in dealing with the question of the highways. It is time to face about and make an effort to get better results. Is it any wonder people are "sore" when it comes to paying road taxes? They have been at it for generations and with here and there an exception, the roads are no better than they were to begin with.

The question now is what specific changes shall be done in order to get better results. The first step in the writer's opinion is to wipe out the labor system of "working out" the tax by the annual picnic or tailfeast, that usually takes place in the early fall when everybody turns out to "improve" the road. There is no definite plan; the practice is to plow and scrape, and fill the center of the road with sod, weeds, brush and earth, making what before was a passable road one that is impassable. The lateness of the season prevents a proper settlement before the heavy fall rains and the winter sets in. The weeds, sod and brush are sure to make trouble for a year or more. Many a time the writer has observed a bunch of men and teams do a hundred dollars' worth of damage to work out a fifty-

order of importance in a county of ten to fifteen towns, one good engineer with three good gangs of men with machinery each having a good foreman, in the four years will make such a show that people will wonder they elaborated the old hit and miss method.

If the method suggested was adopted and followed, it would at least double the results for the tax paid by having regular employment, both the men and horses becoming proficient and doing more in a day than the "greenhorn" would do in two days, and the work will be far better done as well.

The above outline is for treatment of earth roads. When time comes, and come it will, the main roads will have to have a hard, smooth wearing surface, stone, gravel or brick, all of which previously done as above set forth will be valuable as a preparation for the permanent road.

The inauguration of such a plan appeal to the people; they will be getting something for the money paid. Their attitude changes from one of hostility to friendly co-operation, and this is of importance. The writer once saw an enterprising farmer who had a team drag. He took it out in a rain and dragged a mile of road, going twice over it until it was fit for the permanent road.

It seems to be groping in the dark, not knowing just how to accomplish the desired end. In many localities we find that meetings are held, a subscription is started, and volunteers beat up and down the street, asking everyone to subscribe either money or labor. A bank will give \$100, a merchant another \$100, the man next door, who ought to do the same thing, will give \$10. A public entertainment is given up, and after a campaign of a number of weeks, perhaps \$1,000 is raised for improving a piece of road. In order to save expense some local party will undertake the work. He does not know much about road building, and the result is a botch job. The money is spent and a half-mile of road is made, and while it is poorly constructed, it is so much better than the previous conditions, that it is hailed with delight. No effort along these lines can amount to much, beyond the creating of an increased desire for better roads. Experience shows beyond any question that the way to do is to build as large a mileage as possible at the same time, and have it done under the supervision of a capable road engineer. If ten or twelve miles are built instead of one the cost of construction will be much less; it will pay to have improved machinery and the best facilities. Then the payment of the road should not be made by passing the hat, where some will do their duty and others will not, but on the contrary the amount should be covered by issuing long time bonds and spreading the burden over all the property of the township. If fortunately the state is operating under the state aid plan, whereby a portion of the expense is contributed from the state treasury, it simplifies the matter very much and lightens the burden.

The writer made a calculation covering the state of Illinois, and that calculation was verified by the late Dr. Frank H. Hall of Aurora, one of the best mathematicians in the country, and he found it correct. It showed that first-class hard roads could be built over all the main highways in the state of Illinois, under the state aid plan, the state paying one-half the expense from a general tax levy, and the balance locally by the township, and the combined expense spread over a period of ten years, would not exceed ten cents per acre per year on farm lands. What is true of Illinois will be found to work out very closely along these lines in nearly all states of the central West.

The amount of money wasted upon the highways of any state between Pittsburgh and Denver, and from Minnesota to Florida, would more than pay the interest on the bonds necessary to build and maintain first-class permanent roads. We might state it in another way: That the economies that can be accomplished and the benefits that will accrue from improving the highways, will take off from the burden of the people many times more than the taxes to build the roads will impose. Why not convert this waste into a permanent asset? Why not have better conditions when we can do so easily?



You
May
Talk
to One
Man

But an advertisement in
this paper talks to the
whole community.

Catch the Idea?

Your lnting

it is worth
ing at all,
worth do-
well.

lasswork
times is
to.
is figure
you on
ext job.

FOR ROAD BUILDERS

SUGGESTIONS TO HELP THE IN-EXPERIENCED IN HIGHWAY CONSTRUCTION.

FIRST STEP IS DRAINAGE

Get Water Off and Away From Road as Quickly as Possible—Weeds and Sod Make Trouble—Proper Use of Gravel.

By HOWARD H. GROSS.

It is not overstating the fact to say that three-fourths of the men charged with the responsibility of building and repairing the roads the country over, know very little about the subject; they have not had the engineering experience or even the practical experience necessary, they have simply followed their predecessors and they do what the fellow before them did.

In the movement for better highways the first step is a more intelligent expenditure of the time and money appropriated for the betterment of the roads, to the end that the community shall get the most and the best results for its contribution. It is common practice to do either the wrong thing, or if perchance the right thing is done, to do it at the wrong time of the year, and the result is very often an expenditure of one dollar to get thirty cents worth of benefit. As an instance we might cite that Illinois is spending five million dollars a year upon the highways, and those in position to know, assert that more than half of it is wasted timed and misdirected effort.

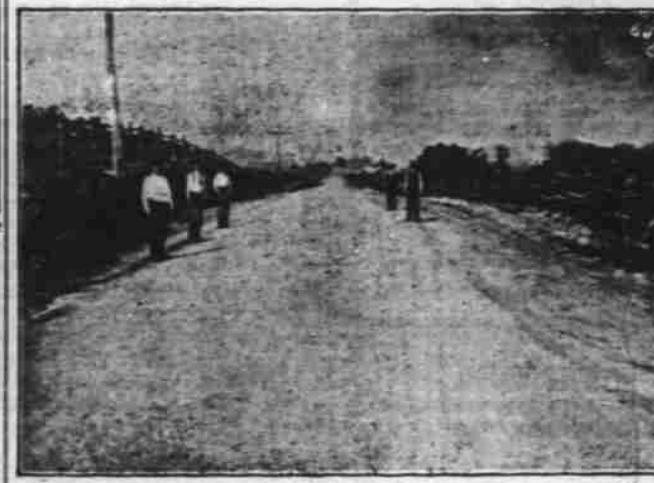


Before Improvement—Johnson City, Tenn.

What is true of Illinois is true throughout the central west.

In order to make suggestions that will be of value one must assume some typical conditions and indicate what it best to do to improve the roads under them.

In road improvement the first and most important step is drainage. Without proper drainage every effort will fail. Water is the only natural enemy of roads, and water is a coward and will run away if given a chance, hence get the water off the road and away from the road as quickly as possible. This may be done either by surface or sub-surface drainage, by side ditches with ample fall and proper outlet to carry the water away from the highway, or by tile. If the latter is done nothing less than four inch tile ought to be used and it should be very carefully laid, and should be put on each side of the road, particularly where the drainage is most needed. Be sure



After Improvement—Johnson City, Tenn.

This beautiful road shows the same highway as the other illustration taken less than a half mile apart after name has been improved, such roads more attractive socially, more pleasant, more popular and higher farm values. The increase in the value of farm lands along this road is said to be at least three times as much as the tax to build the road.

These illustrations were furnished by the U. S. Office of Public Roads.

Hence the road made in this manner requires a long time and a great deal of subsequent attention before a fairly good gravel road is the result.

Suppose the bed of the ditch is twenty-four inches wide down a hill slope. Construct so that the bottom of the ditch next to the hill side will be an inch or so lower than the side next to the road, so the flow will tend to the hill side instead of to the road.

Wherever it is necessary to carry water across a roadway, it is best to use iron or concrete pipe and carry it across at an angle. Strong tile will do if it is placed a sufficient distance below the surface so it will not be broken by the traffic. The outlet of this crossing should be consider-

My farther down hill than the take.

Where culverts are necessary have them of ample size, and it is equally important to give the culvert sufficient fall. A twelve inch culvert, twenty-four feet long with a fall of four inches, is better than one twice the size with a fall of two inches. The rapid flow through the culvert will keep the culvert clean. In one where the flow is sluggish, debris will form and soon will clog the flow. Be sure to leave ample cover so the water can move freely after passing through the culvert.

In grading to make a fill do not allow any weeds or sod to get into the roadway. These will decay and make all kinds of trouble. It is much better to keep them out in the first instance.

If in making the fill, the material must be moved six hundred feet or less, it will be advantageous to do this with scrapers—wheel type preferred. But if the material must be moved more than that it will be cheaper to put it upon wagons. Any filling of this nature should be made early in the spring, preferably as soon as the frost is out of the ground, so it will have ample time to compact and settle by the summer rains and the traffic. By proper handling during the summer season, a fill several feet deep can be put in shape for the road. A fill of this kind should be dragged with a split log drag or its equivalent after rains in order to keep the fill smooth and rounded so the water will run off quickly. The main thing is to prevent this fill from becoming water soaked. If this is done it will be thoroughly dried out and in good condition before the winter sets in, and it can be kept comparatively dry, if the tiles are kept open at the sides and water is kept off the surface. In order to do this

where a road has been built, after a winter, and care of and loss, first year, and the

do this is with a split log drag, where the horses go, but a drag of the surface will fill these and a short time a compact, smooth roadway will result. A better road can be built in one year if this plan is followed than can be built in three years by the old plan, and the road will be smoother and will serve a better purpose.

Do not forget that the most important part of road building is drainage, and that five or six inches of gravel on a well drained road will give better results than twice this material upon a road that is imperfectly drained.

When the writer was attending the great International Meeting of Road Engineers in Paris, 1908, one of the delegates asked an eminent French engineer how soon after the road was built he commenced to make repairs. His answer was: "The next day." If any place "a stitch in time saves nine," it certainly will do so on the highway. The splendid roads of Europe are looked after by an attendant who goes over them every week, and as soon as a break appears, the necessary repair is made. In this country the practice has been to build an expensive road or pave a street at a high cost, and do nothing with it until it becomes impassable.

When any township has well graded and thoroughly drained its highways, the question of good roads is half solved, but only half. A smooth hard wearing surface must be put upon the same, especially upon the main highways. Where the state aid plan is followed the expense is not a burden to anyone and the benefits are many and shared in by all.

We sometimes hear the statement made by those who are trying to find objections to the building of hard roads, that an earth road is much pleasanter to drive upon and easier for the horses, and therefore the advantages of a good road are in some degree offset by the fact that an earth road at certain seasons is the better of the two.

The writer has always advocated, that where it is practical, it would be well to leave a smooth earth road alongside of the stone or gravel road, so that the drivers might choose between the two. When the weather is fine and the earth road is smooth, the drivers will usually take that in preference to the hard road. This saves wearing the hard road, and thus it serves a double purpose. Let a heavy rain descend and everybody takes the hard road. The difference is the improved highway is good 365 days in the year, and the other road is good and bad by turns. Having them side by side, which can easily be done without additional expense, the people have the choice.

There is another feature of the permanent road that should not be lost sight of. In the busy season while the crops are being planted, sometimes a heavy rain will fall, so that the fields are too wet to work. With good roads the farmer can make a trip to town, do the necessary errands, haul off a load of grain or hogs and keep his farm hands employed. If the roads are unpaved, he can neither work the farm nor travel the highways.

Every road overseer, and in fact every farmer, should send to the state engineer of his state, and to the office of Public Roads at Washington, and have his name put upon the mailing list, so that the bulletins and circulars, of which scores are published every year, upon road building and maintenance, road drainage, and suggestions that grow out of the experience of road building can be followed up and adopted by them. If this were done it would stop an enormous amount of money that every year is wasted upon the highways by ill times and misdirected effort.



What's
the use
of waiting?

A dollar a week buys a Victor. Enjoy it while you pay for it.

"Easy Payments" are the modern way.

VICTOR

quality is the highest.
And we have all sizes,
styles and prices.

Come and see about it today.

Conley's

Store,

Louisa, Ky.